Recommendations for Future City Stormwater System Management

Subject: Report to the Mayor and City Council by the Environmental Sustainability Committee (ESC) as a follow up to the June 25, 2013 worksession with City Council.

Summary: As a result of its review of city stormwater issues over the past three years the ESC has reached several conclusions regarding the demanding current and pending state and federal regulatory requirements:

1) The root of the city's stormwater problems lies in the many years of build-out in the city resulting in a vast increase in impervious surfaces and increased runoff.
2) The ESC commends the city for beginning the critical work of establishing a stormwater fund, funding staffing, and identifying policy needs to address upcoming regulations.
3) Moving forward, the city should focus on a more comprehensive and coordinated effort that will pull together the many government and private stormwater related activities, move policies and practices from stormwater drainage projects to improvements in stormwater management and track the cumulative effects of all public and private projects.
4) There is potential for remediation (and meeting requirements of the pending regulations) by 1) increasing the use of Low Impact Development construction techniques, and 2) mobilizing residents and businesses in improving stormwater management on private properties.

The body of this report provides recommendations of specific actions that the ESC believes will improve the city's stormwater management efforts for both the short and long term.

Background: The ESC has conducted an ongoing review of the status and the future needs for stormwater management within the city over the past three years. This review is based on examination of relevant documents, current and emerging state and federal regulations, city budget proposals, major developer and road proposals within the city, and discussions with city staff members. This report focuses on policy issues, and makes no effort to address the technical advice of the City's very competent technical staff on individual stormwater problems.

Findings: Based on our review, we have drawn the following conclusions regarding the future of our stormwater management program.

Regulatory demands. In the past three years the regulatory obligations of the city have significantly increased, and will continue to do so in the near-term.

- The overarching federal Chesapeake Bay cleanup program has produced a U.S. Environmental Protection Agency "pollution diet" plan (a Total Maximum Daily Load or TMDL plan) that demands all jurisdictions in the Chesapeake Bay watershed reduce the presence of sediment, phosphorous, and nitrogen pollutants in their tributary waterways. The Accotink Creek originates in Fairfax City, flows through Fairfax County, and discharges through the Potomac River into the Chesapeake Bay. The Commonwealth of Virginia is responsible for allocating the amounts of those pollutants among jurisdictions.

- A second Accotink specific TMDL is under preparation by the Commonwealth that will address a reduction of sediment in the Accotink Creek.

- The Commonwealth has developed a state-wide Virginia Stormwater Management Program (VSMP), that will go into effect in 2014 and phase in additional requirements over five years.

- The city's own municipal stormwater permit has been renewed in July 2013 and the pollutant reductions are incorporated into its requirements.

Together these regulatory requirements will demand that the city control the three pollutants identified in the Chesapeake Bay TMDL, and in order to do so, the city will need to find ways to reduce and slow the flow of stormwater (especially during peak storm events), allow greater infiltration into the subsoil, and increase the filtration of runoff before it reaches our streambeds. All of these outcomes will greatly reduce sedimentation (and pollutants like phosphorous that bond with sediment) and slow the scouring and erosion of streambeds that result from high flow and velocity of stormwater discharges

Historic Development of the City Stormwater System: Over the years Fairfax City has developed an effective stormwater drainage system that, until recently, met most of our needs. A separate stormwater sewer system connects the receiving street intakes with outfalls that empty into the three branches of the Accotink Creek located within the city limits, merging into a single streambed near the City Property Yard at Pickett Road, before flowing on into Fairfax County. It is a good basic system, but much of the infrastructure is aging and maintenance and repair is becoming more expensive and ultimately the capacity of our system to carry the increased runoff is also questionable.

Recent City Stormwater System Developments: While the storm sewer to the Accotink conveyance worked well for many years, the build-out of the city, and the resulting increase of impervious surfaces (roofs, roads, parking lots, etc.) with

the corresponding reduction of natural vegetation and trees, has led to overwhelmed drainage systems in some areas (e.g., the Old Town city center, and the Northfax road intersection), serious neighborhood flooding (e.g., Foxcroft and Mosby Woods Condominiums), and deep and continuing scouring and erosion in the bed of the Accotink Creek branches (e.g., Daniels Run Elementary School grounds). These damages require very expensive remedial construction and restoration efforts.

Effects of Continued New Development and Redevelopment: The city continues to grow and new residential and commercial projects are planned, designed, and constructed. In some cases, existing obsolete buildings are torn down and replaced by redevelopment. Road construction and enlargement projects are ongoing within the city. Each of these efforts is carefully evaluated by city experts to determine that the minimum construction standards, including stormwater drainage, are met, or even exceeded through the use of voluntary proffers and other mutually agreed adjustments. There are limits on the city's ability to demand more stringent requirements due to the Commonwealth's approach to centralized legislative development as a Dillon Rule state.

However, it appears that over time this process has become very project specific, focused on draining stormwater away from individual sites in a piecemeal manner, albeit while meeting required filtering and retention ordinances. Unfortunately, the current approach appears to work against consideration of the cumulative quantitative effects of all the stormwater discharges on "downstream" areas of the city, especially on the Accotink streambed itself. The city's Comprehensive Plan offers some guidance, but is largely out of date at this time. The overall effect of this site-specific focus is that efforts focus more on storm water drainage than on stormwater management.

More extensive incorporation of Low Impact Development (LID) construction and landscaping techniques would contribute significantly to better stormwater management. Private developers and redevelopers can incorporate greater use of permeable pavements, better landscape design, rain gardens and other plantings and tree use, as well as improved retention and storage facilities that will slow the release of stormwater. There is a considerable amount of open documentation of these techniques, and an abundance of trained personnel to design and build them.

Potential for Greater Citizen Participation in Solutions: The scope of future stormwater management will necessitate active involvement of our citizens and businesses to meet regulatory needs. A recent self-selected on-line ESC survey found that over 70% of responding citizens expressed concern with the effects of stormwater problems in the city. High citizen concern is both an indicator of the extent of the problem as well as an opportunity to engage citizens on a large

scale. Fiscal and physical city owned property limitations will restrict the city's ability to meet needs by construction of public stormwater facilities alone. Citizens can contribute greatly by incorporating LID techniques on their own properties, and using simple mechanisms like rain barrels and rain gardens to reduce the rate of runoff. A great deal of information is available on line, and in voluntary classes in our region, but there seems to be no comprehensive program in place to inform and mobilize citizens.

City Resources to Deal with Stormwater Needs: The city has taken positive steps to address the extensive financial requirements of restoring and improving our stormwater management system, and to build a competent, experienced professional staff to execute its stormwater plan.

The City Council has established a stormwater fund within the Capital Improvement Program of the annual budget, supported by dedicated 2-cents per $100 property tax. It is the ESC's understanding that this will result in raising revenue of approximately $1.07 million dollars in fiscal year 2014. The adopted 2014 budget identifies that; 'These funds will be used as part of the City's plan to address aging infrastructure and pending regulations from the federal government regarding stormwater management". Examination of past years spending indicates that the preponderance of the fund's expenditures have been for maintenance and drainage projects, with relatively little appropriated to new, preventive or retention construction. Recognizing that flooding and sewer failures will always require emergency repairs that demand use of stormwater funds, the ESC has emphasized that underfunding of preventative measures such as public-owned retention facilities is not consistent with the city's future stormwater needs. It appears that some more consistent system of prioritizing the various demands on the stormwater CIP funding will be necessary for a sustainable program.

Recommendations:

1.) The principal recommendation of the ESC is that the Mayor and City Council take a more direct control of the many separate aspects of the city's stormwater management program and focus on setting a clear system of priorities for action and funding to bring about a more comprehensive and coordinated effort to achieve regulatory compliance and protection of the current system. The objective should be a more integrated stormwater management program including all aspects of government, and involving citizens and city businesses.

2.) The Mayor and Council should place emphasis on carefully targeted and prioritized uses of the CIP Stormwater Fund, to:

- Ensure the fund will only be used for large, public stormwater projects that directly address stormwater management.

- Balance expenditures between maintenance, drainage projects, and currently neglected preventive construction that will retain and slow runoff and restore the streambed of the Accotink Creek, an under-appreciated and over-taxed component of the city's total conduit system.

3.) Using the many assets within the city government, identify potential improvements and opportunities to address the growing need for more effective stormwater management within the city. Some illustrative approaches include:

1. Improve drainage design for private development and redevelopment projects to both improve management of stormwater on site, and reduce the downstream impacts on other city residents and our streambeds.

2. Identify and ensure construction of new public preventive best management practices and stormwater facilities wherever practicable on public land.

3. Make better use of our public spaces and parklands to improve retention and filtration of stormwater runoff.

4. Ensure that city planning includes an updated and complete determination of the cumulative effects of development on the city stormwater system.

5. Provide more transparent prioritization of needed stormwater system maintenance, drainage problem abatement, and construction and rehabilitation of preventive stormwater facilities.

6. Design city ordinances to improve stormwater management wherever possible.

7. Require where possible, or encourage though proffers and other mechanisms, greater use of low impact development in new construction or redevelopment.

8. Identify potential retrofit projects to reduce unnecessary impervious surfaces such as replacing stub-end streets with pocket parks and retention projects.

9. Enforce maintenance requirements of privately owned stormwater facilities, and continue to explore possibilities for professional advice and non-Stormwater Fund assistance where appropriate.

10. Mobilize the efforts of individual residents and businesses to retain and manage stormwater on their properties through the use of such vehicles as rain barrels, rain gardens, permeable pavements, and landscape plantings.

11. Finally, the recommendations of the July 2005 City of Fairfax, Virginia Watershed Management Plan Final Report should be reviewed (see Chapter 4 and Appendix E) and incorporated into the City's stormwater management program as appropriate. It is the ESC's belief that many of these recommendations remain pertinent to current stormwater management problems.

Future Role of the Environmental Sustainability Committee. The members of the ESC will remain engaged with the evolving city stormwater management program, and continue to offer advice and respond to any requests of the Mayor and Council. We plan to be active in the review of future city budgets with an emphasis on the balance of funding levels among maintenance, drainage, and preventative facility projects. We are encouraged by the increased interest and level of knowledge of the city stormwater program, and by the level of staff expertise and dedicated revenue available. We look forward to continued improvement of this vital public service.

End of Document